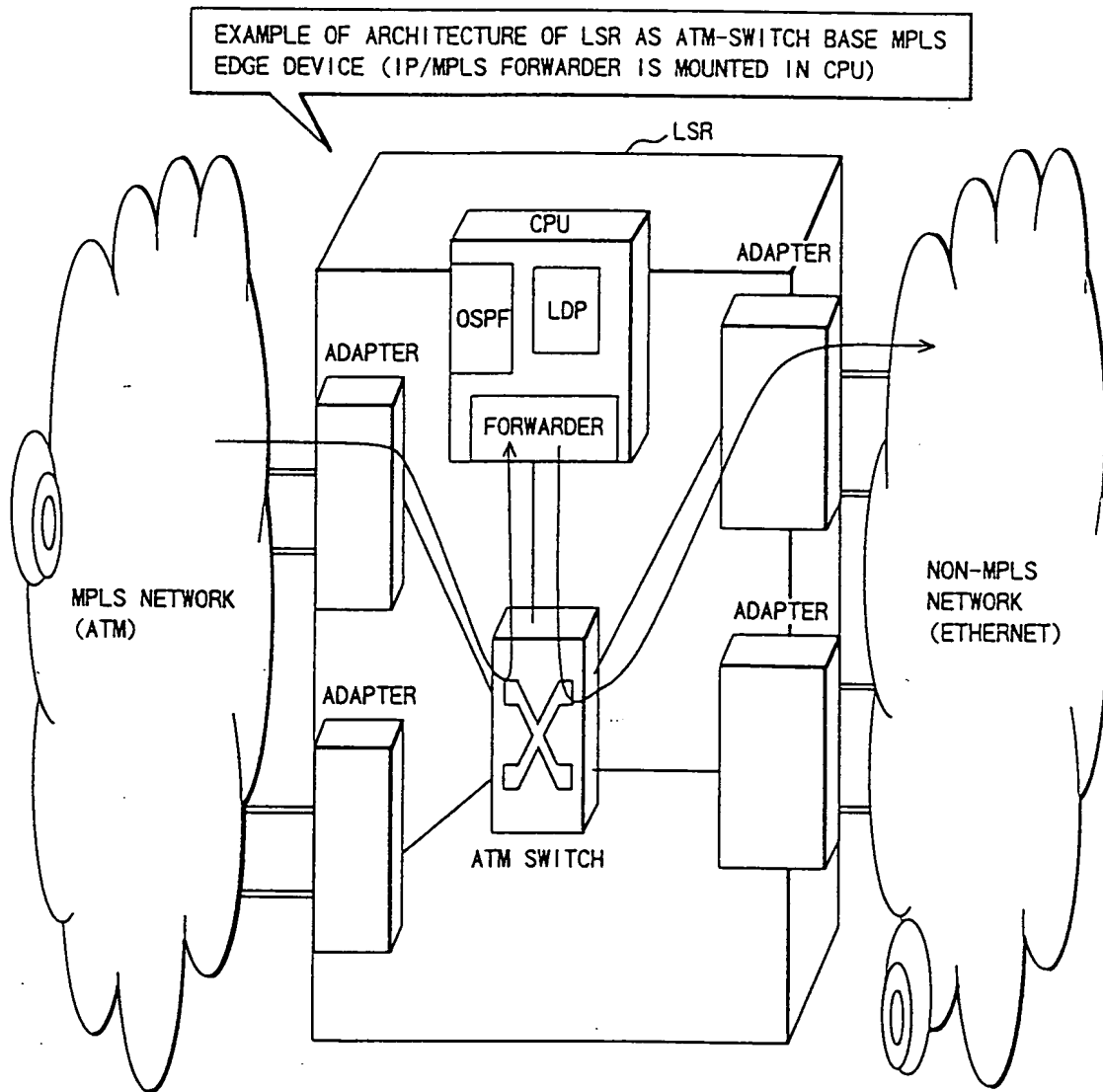


FIG.1



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FIG.2

EXAMPLE OF ARCHITECTURE OF LSR AS ATM-SWITCH BASE MPLS
EDGE DEVICE (IP/MPLS FORWARDER IS MOUNTED AT PRE-STAGE
OF CPU AND SHORT-CUTS CPU)

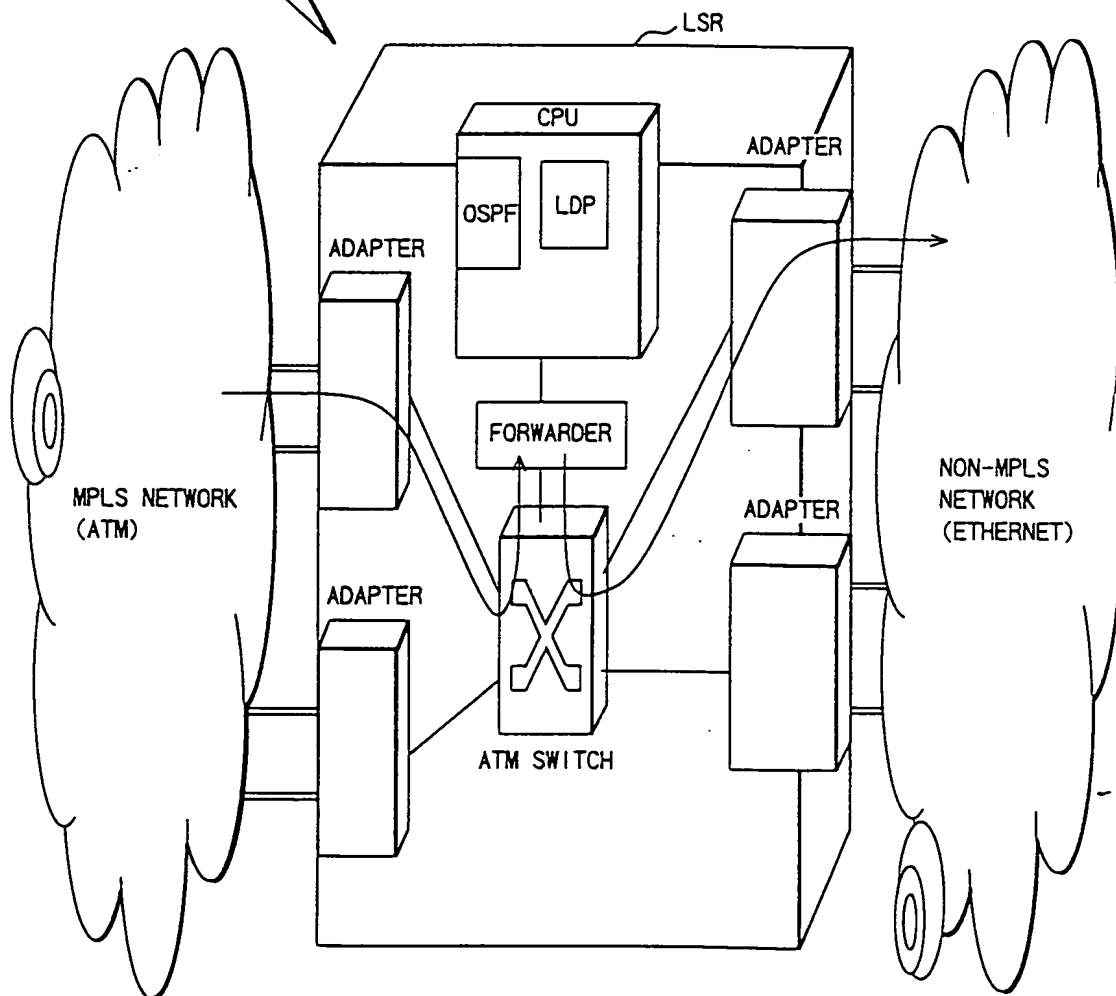
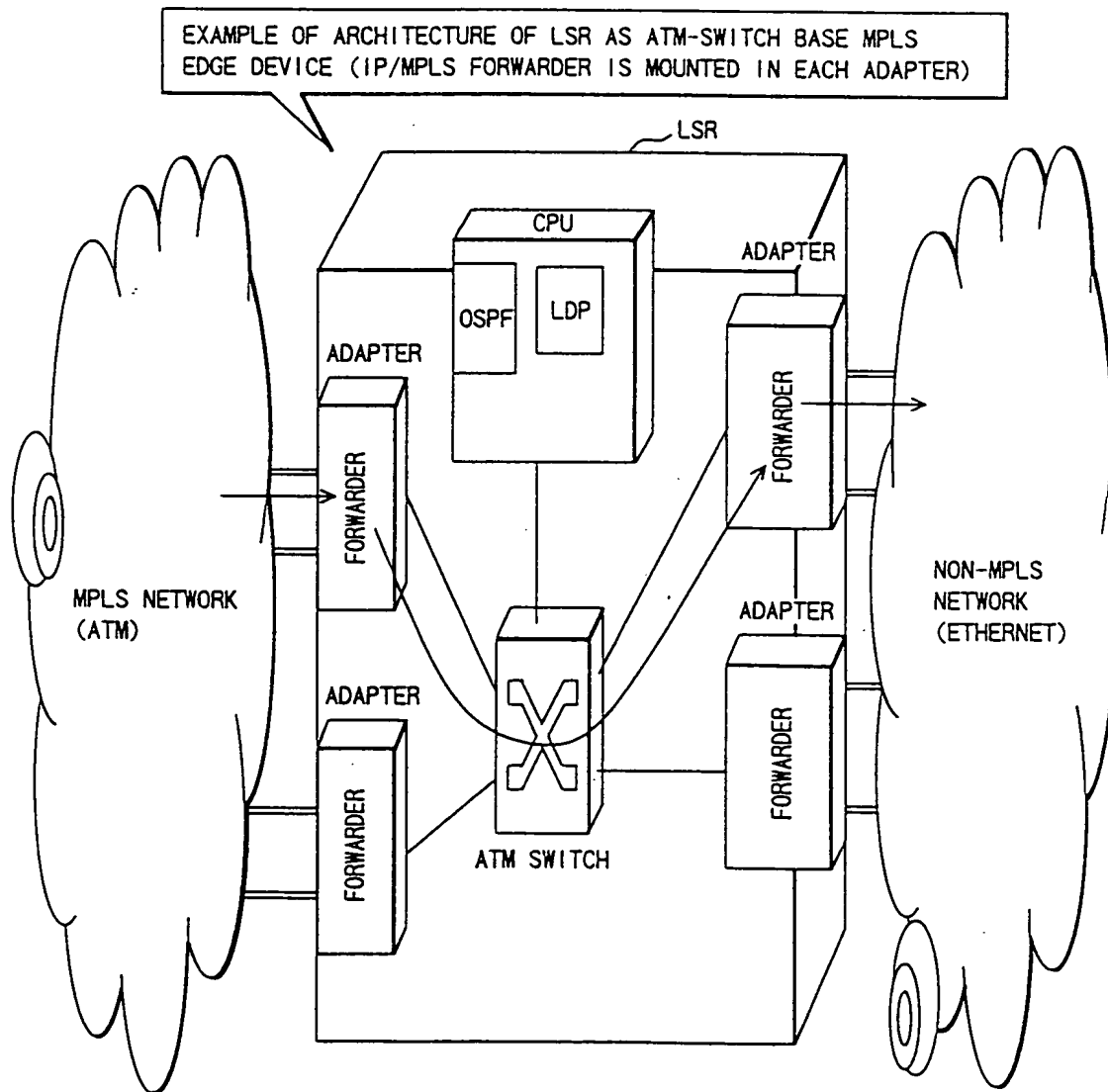


FIG.3



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FIG.4

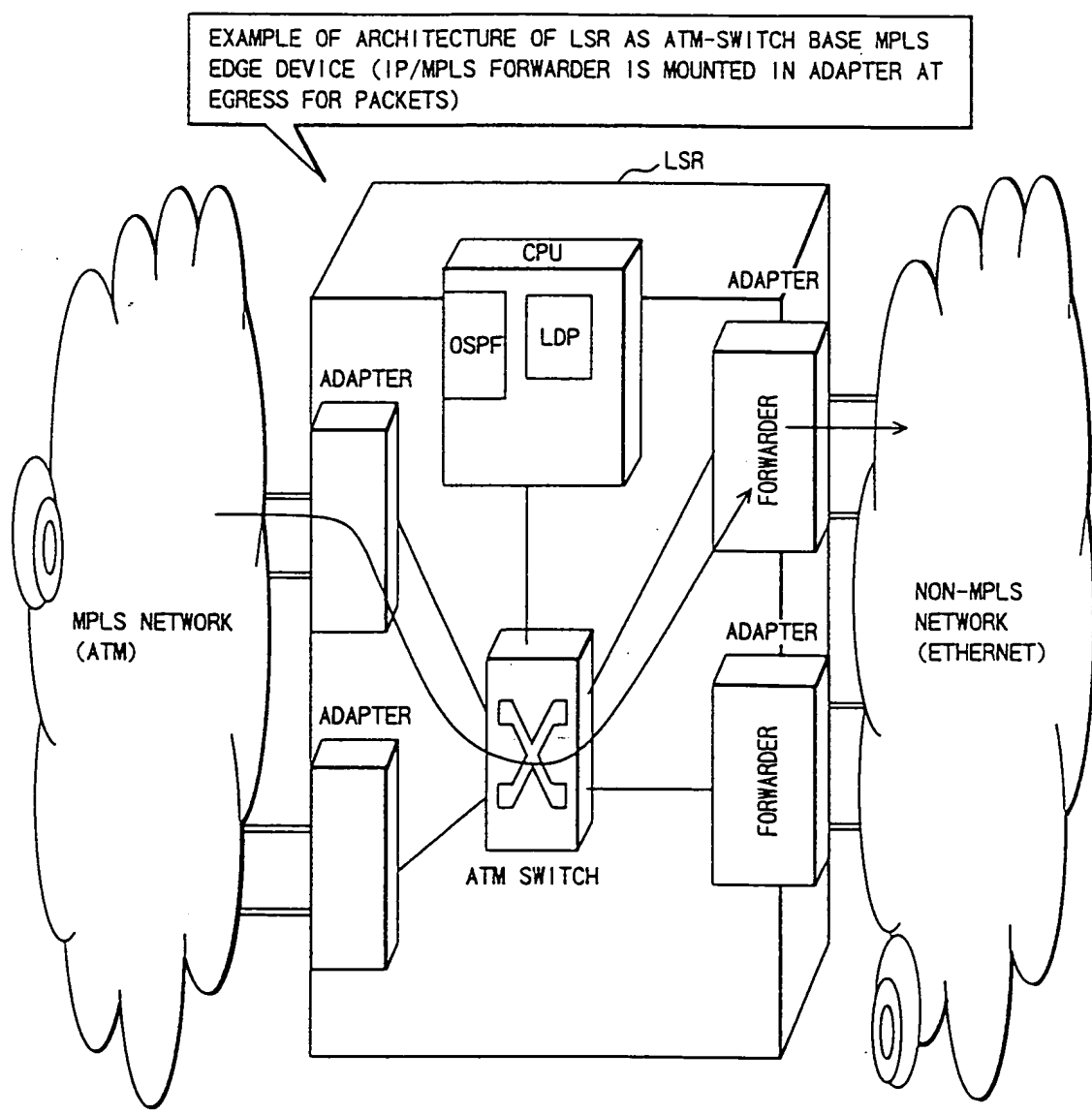
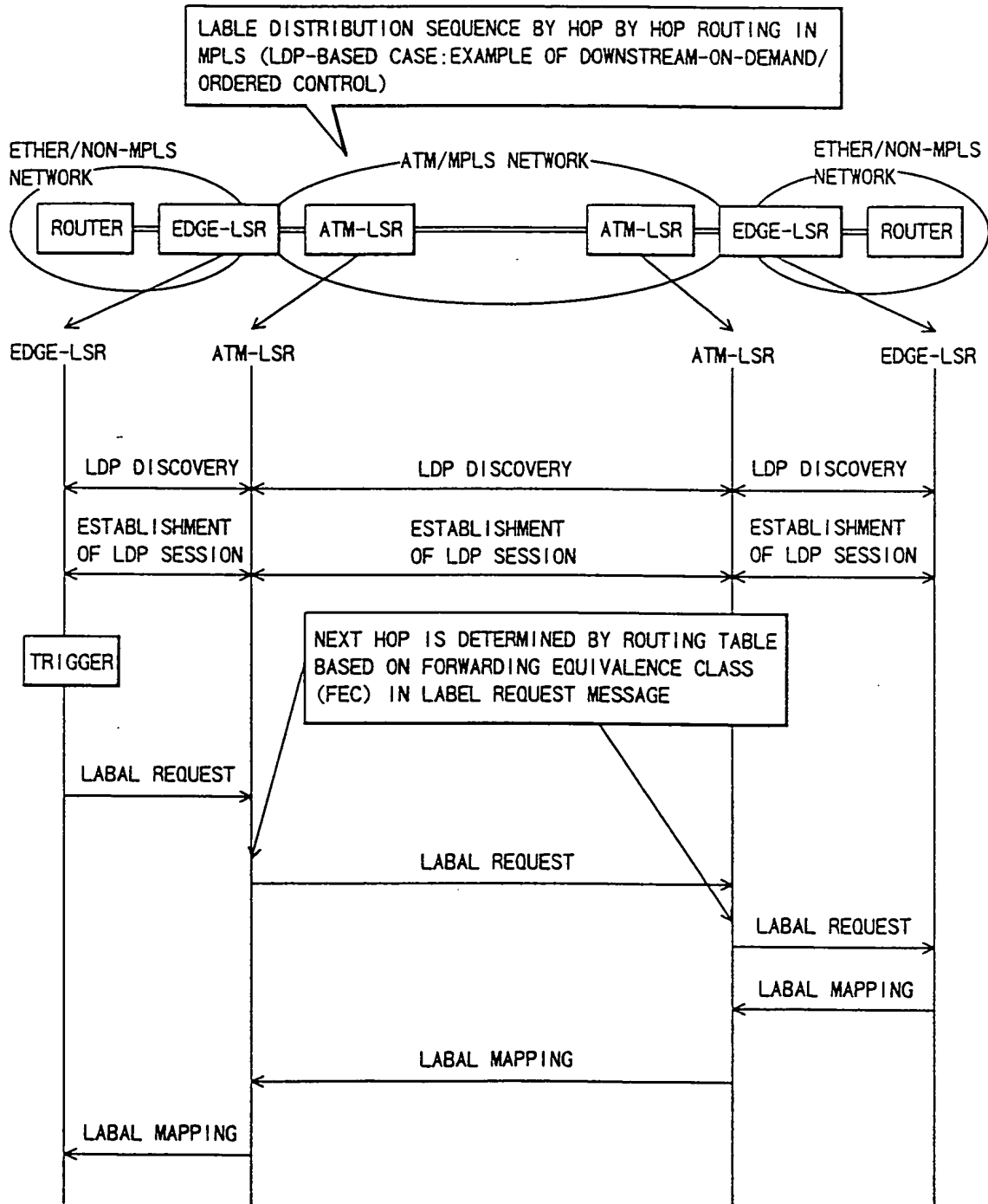


FIG.5



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FIG.6

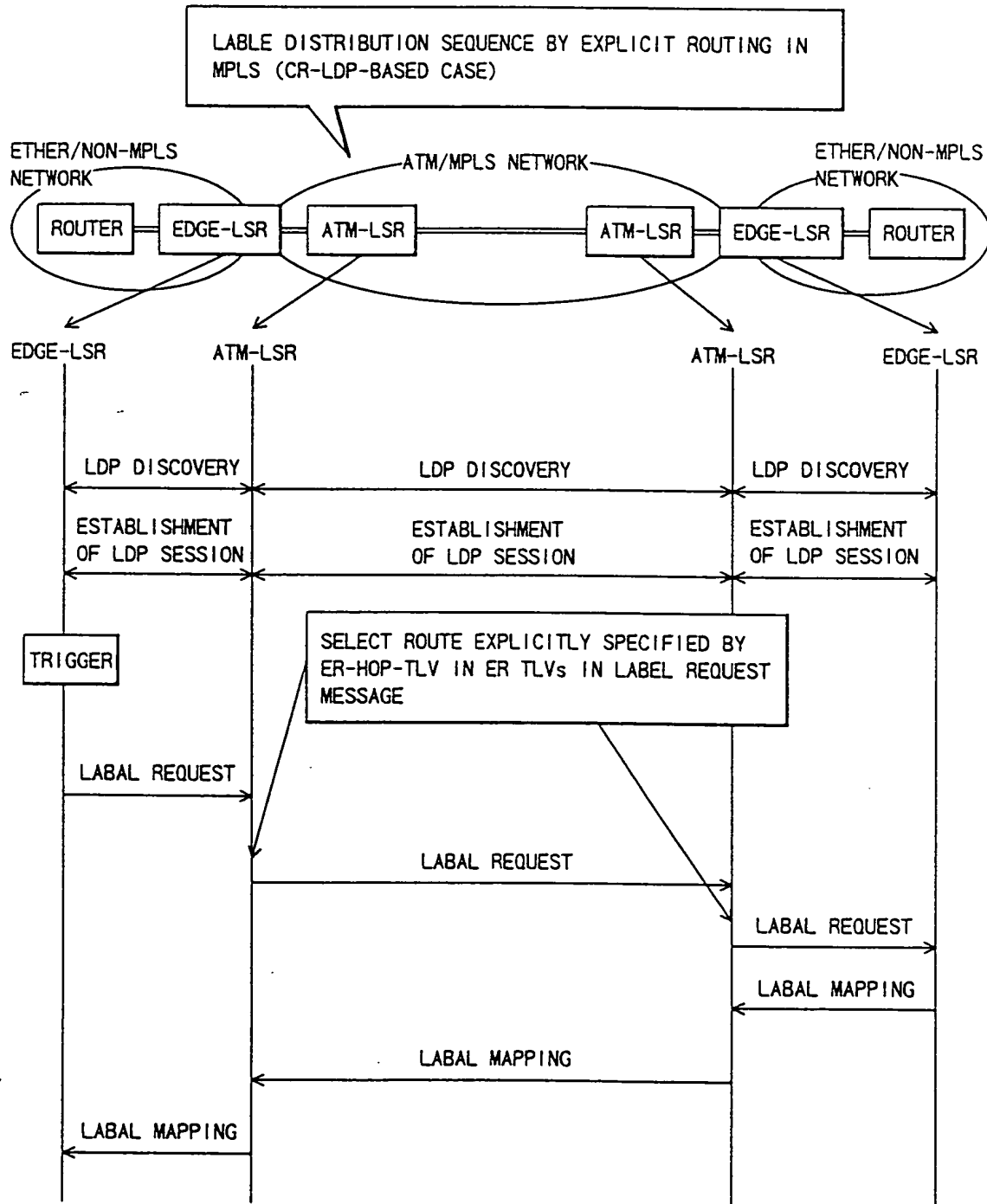


FIG.7

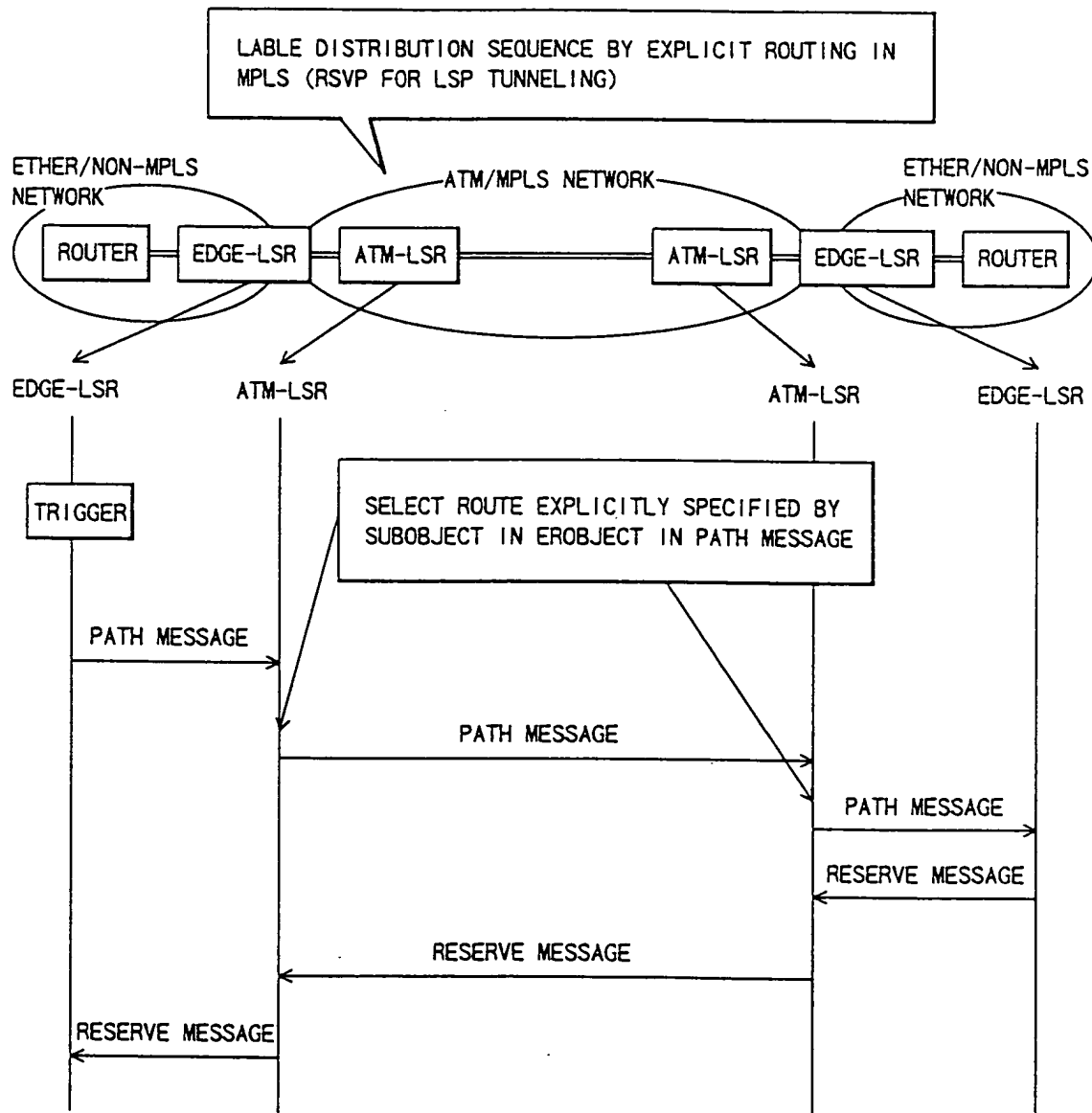


FIG.8

EXAMPLE OF LOGICALLY DEFINING INDEPENDENT LSR CORRESPONDING TO EACH INTRA-SYSTEM ADAPTER

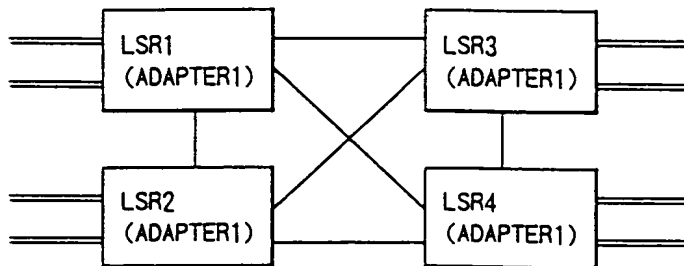
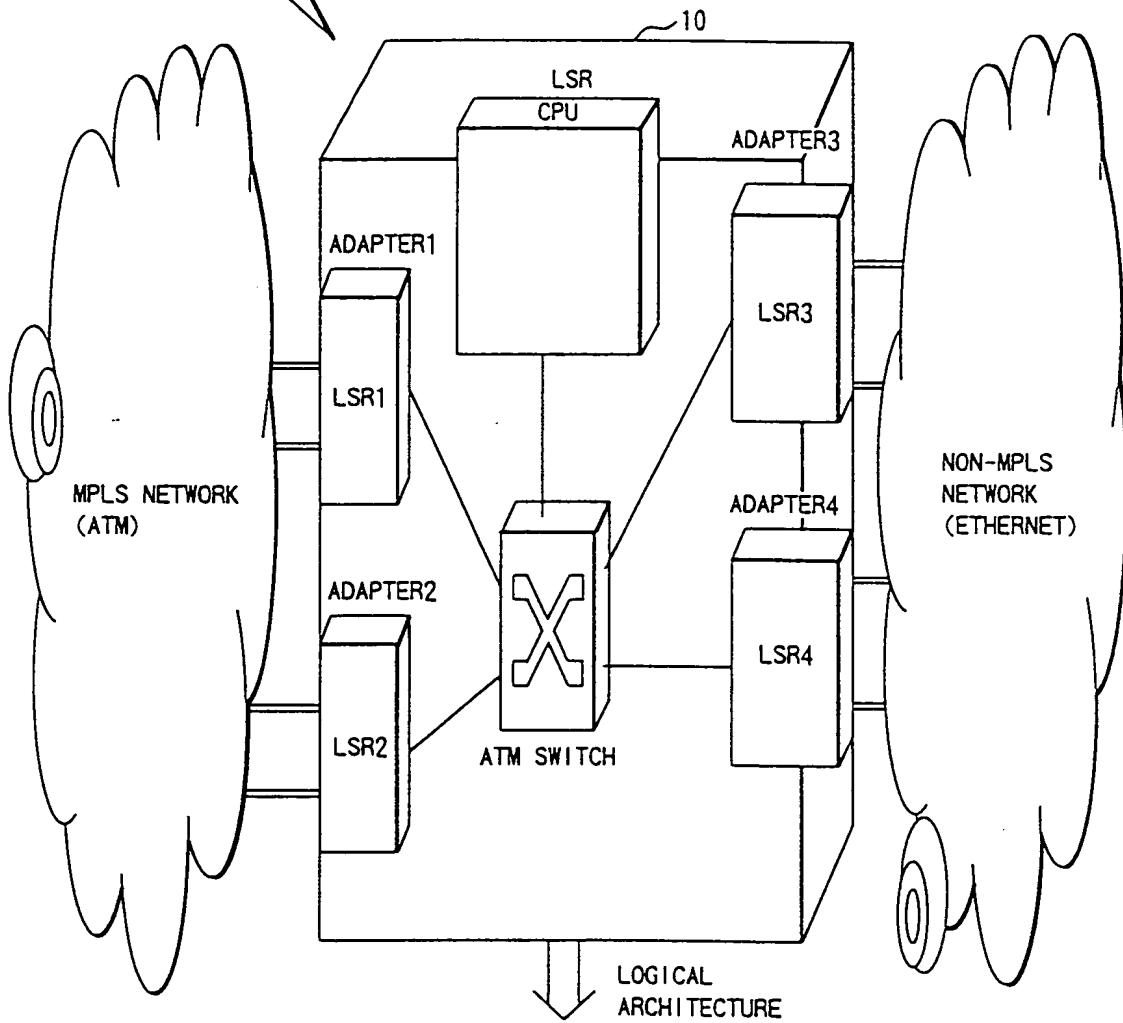
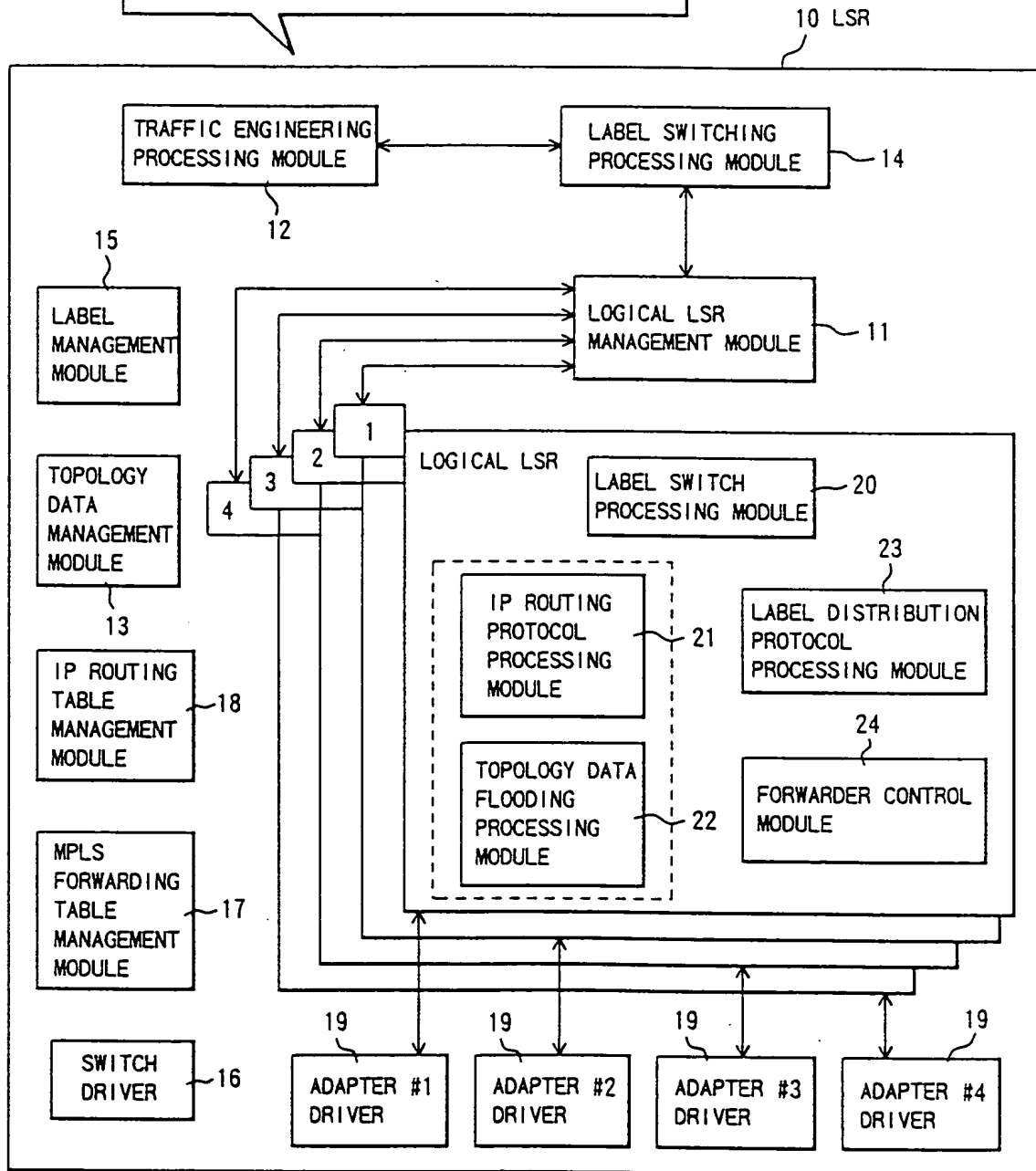


FIG.9

EXAMPLE OF ARCHITECTURE IN MODE OF MOUNTING PLURALITY OF LOGICAL LSRs INTO SYSTEM



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FIG.10

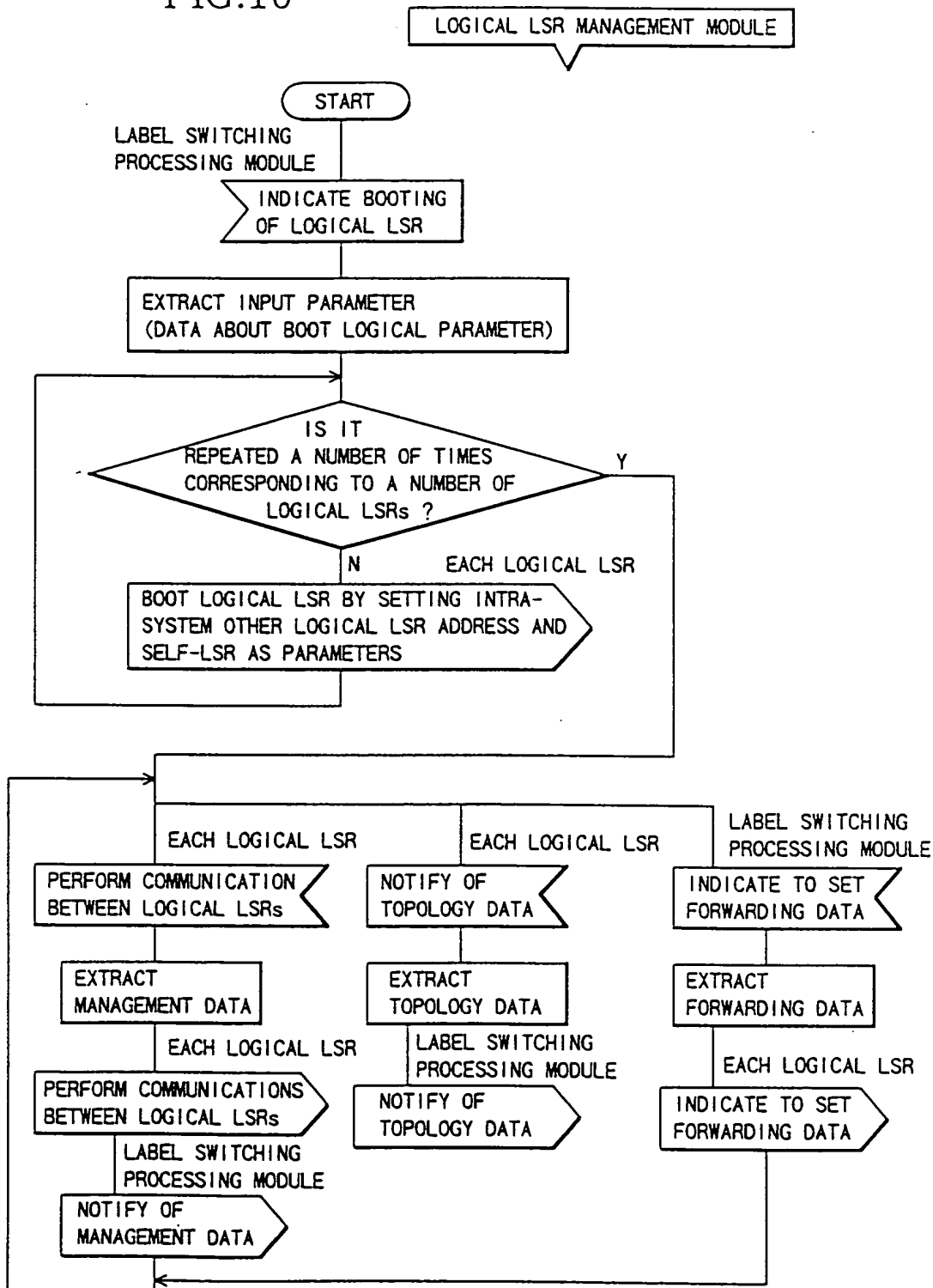
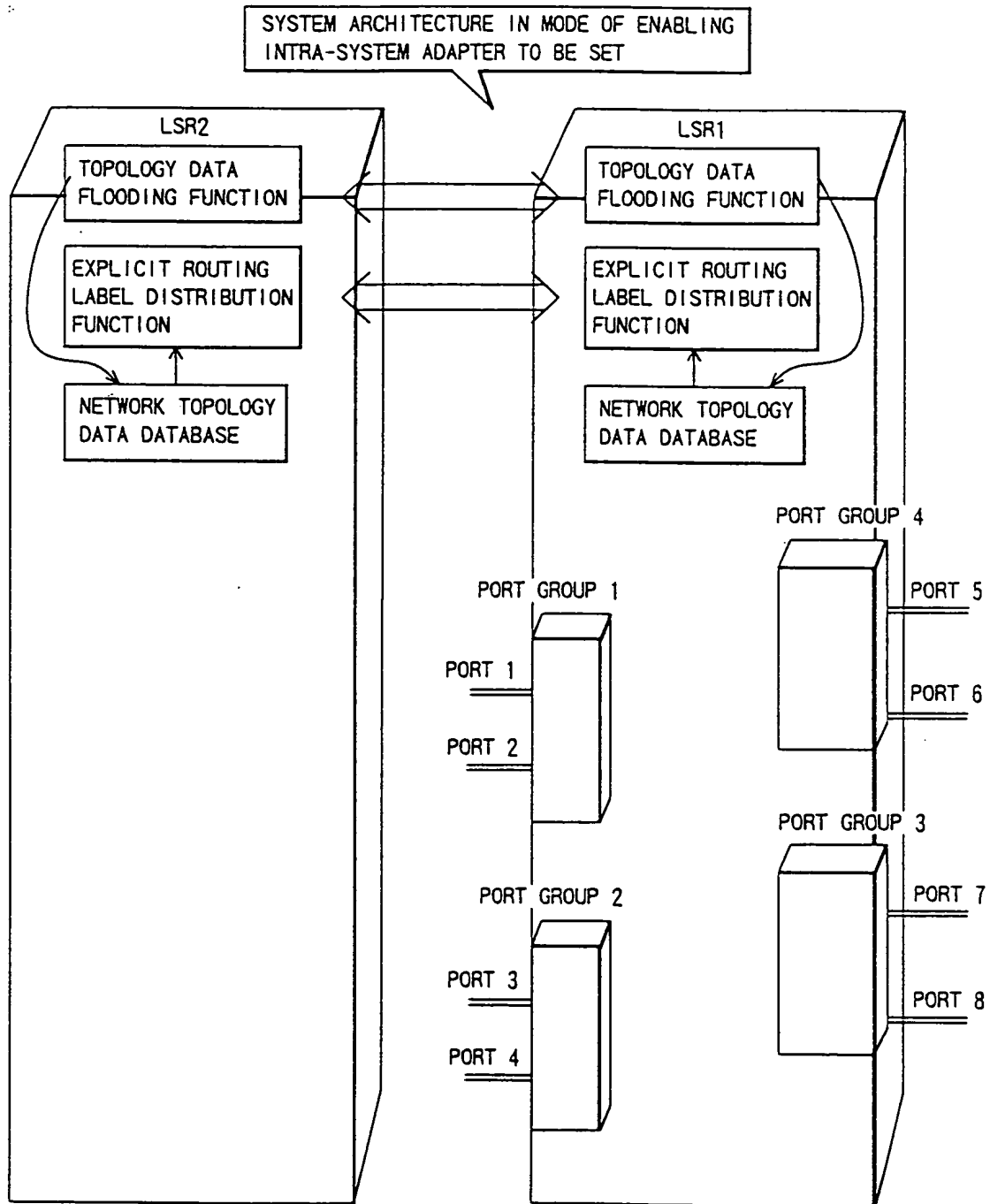


FIG.11



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FIG.12

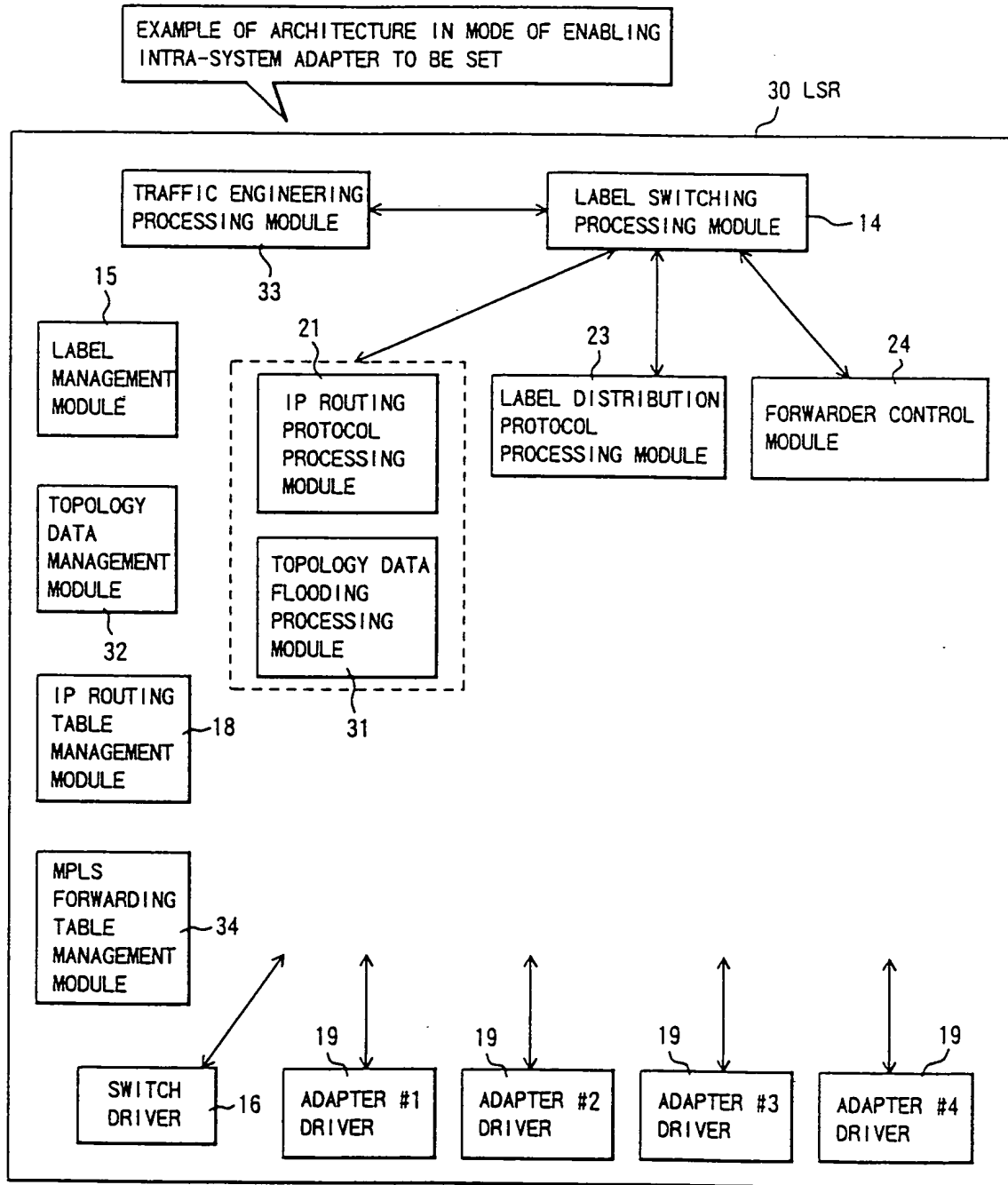
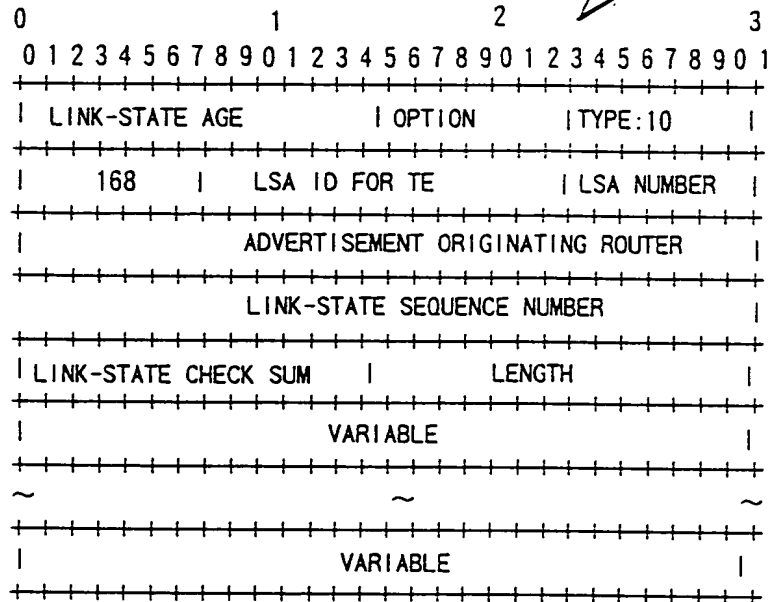


FIG.13

EXAMPLE OF DEFINITION OF OPAQUE LSA OF OSPF FOR TRAFFIC ENGINEERING



1:ROUTER ADDRESS TVLV(TYPE-VARIABLE LENGTH-VALUE)

4-OCTET IP ADDRESS OF ROUTER FOR GENERATING LSA

2:NEIGHBOR TVLV

DESCRIBE ADJACENT SERIES IN TRAFFIC ENGINEERING TOPOLOGY

LINK TYPE, LINK ID, METRIC, SUB-TVLVs AND SUB-TVLVs OF SIZE 0 OR LARGER INCLUSIVE, SUB-TVLVs ARE USED FOR SUPPLYING ADDED DATA

LINK TYPE 1 OCTETS, 1:P2P, 2:MULTI-ACCESS

LINK ID 4 OCTETS

METRIC 4 OCTETS

LENGTH OF SUB-TVLV 2 OCTETS

SUB-TVLVs OF 0-65504 OCTETS, FOLLOWING SUB-TVLVs ARE DEFINED

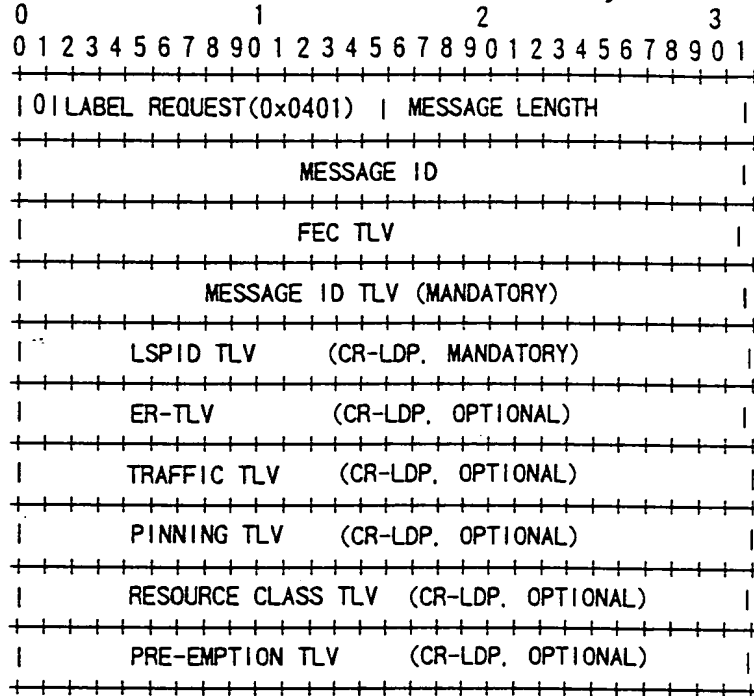
SUB-TVLV TYPE	LRNGTH (OCTET)	VALUE (OCTET)	NAME
1	1	4	INTERFACE ADDRESS
2	1	4	ADJACENT ADDRESS
3	1	4	MAXIMUM LINK BAND
4	1	2	MAXIMUM POSSIBLE-OF-ALLOCATION LIUNK BAND(%)
5	1	32	PRESENT RESERVE BAND
6	1	4	RESOURCE CLASS
			(COLOR, MANAGEMENT GROUP)

* THIS IS 4-OCTET BIT MASK ALLOCATED BY NETWORK MANAGER AND EACH BIT CORRESPONDS TO ONE MANAGEMENT GROUP ALLOCATED TO INTERFACE

FIG.14

LABEL REQUEST MESSAGE OF CR-LDP, ER TLV, ER HOP TLV, AND RESOURCE CLASS TLV

1. STRUCTURE OF LABEL REQUEST MESSAGE



2. STRUCTURE OF EXPLICIT ROUTE TLV (ER-TLV)

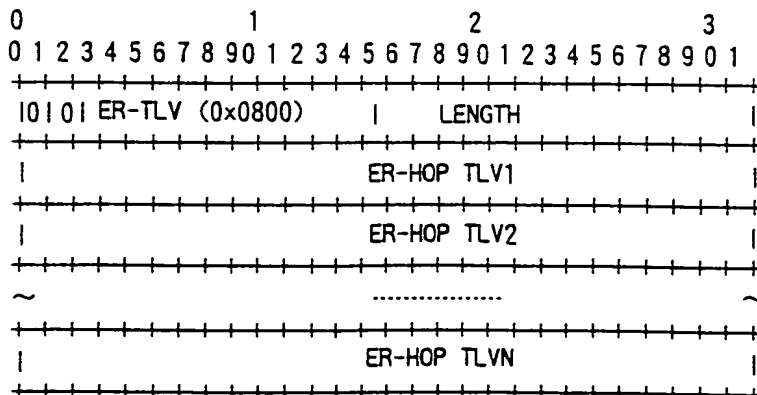
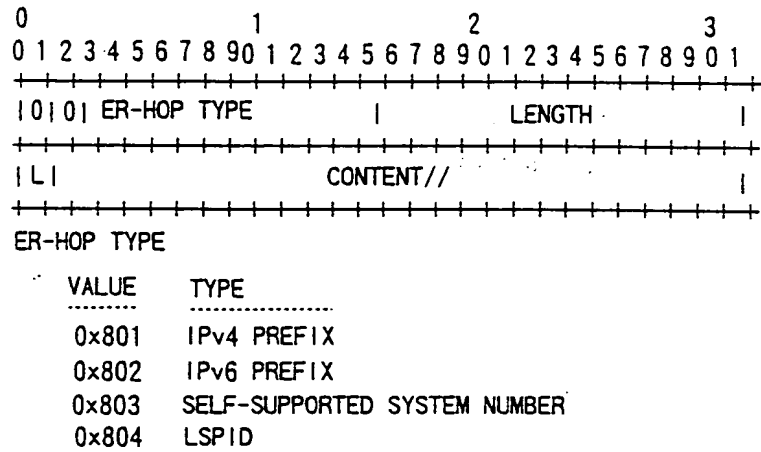


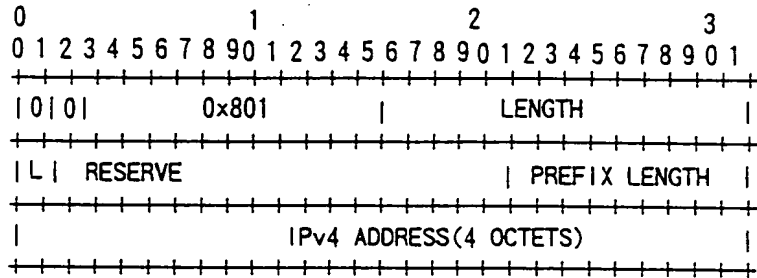
FIG.15

LABEL REQUEST MESSAGE OF CR-LDP, ER TLV, ER HOP TLV, AND
RESOURCE CLASS TLV

3. STRUCTURE OF EXPLICIT ROUTE HOP TLV(ER-HOP TLV)



4. STRUCTURE OF IPv4 PREFIX



5. STRUCTURE OF RESOURCE CLASS(COLOR) TLV

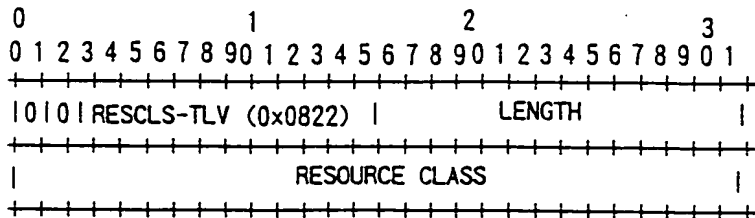
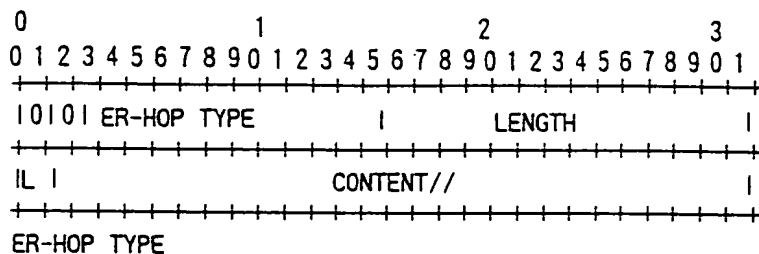


FIG.16

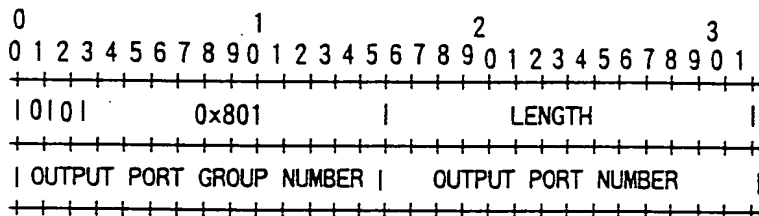
EXAMPLE OF ADDITIONAL DEFINITION OF ER HOP TLV

1. EXAMPLE OF STRUCTURE OF EXPLICIT ROUTE HOP TLV (ER-HOP TLV)



VALUE	TYPE	
0x801	IPv4 PREFIX	
0x802	IPv6 PREFIX	
0x803	SELF-SUPPORTED SYSTEM NUMBER	
0x804	LSPID	
0x805	PORT AND PORT GROUP (LINK AND LINK GROUP)	← EXAMPLE OF ADDITION
0x806	RESOURCE CLASS	← EXAMPLE OF ADDITION

2. EXAMPLE OF STRUCTURE OF PORT AND PORT GROUP (LINK AND LINK GROUP) ← EXAMPL OF ADDITION



OUTPUT PORT GROUP NUMBER : THIS NUMBER INDICATES PORT GROUP (LINK GROUP OR INTERFACE GROUP) IN DOWNSTREAM DIRECTION OF LSP PASSING THROUGH SYSTEM
ALL '1' INDICATES WILD CARD. THIS CARD IS USED FOR SPECIFYING ONLY OUTPUT PORT

OUTPUT PORT NUMBER : THIS NUMBER INDICATES PORT (LINK OR INTERFACE) IN DOWNSTREAM DIRECTION OF LSP PASSING THROUGH SYSTEM
ALL '1' INDICATES WILD CARD. THIS IS USED FOR SPECIFYING ONLY OUTPUT PORT GROUP

FIG.17

PATH MESSAGE OF RSVP EXTENSION, EXPLICIT_ROUTE OBJECT AND IPv4 SUBOBJECT

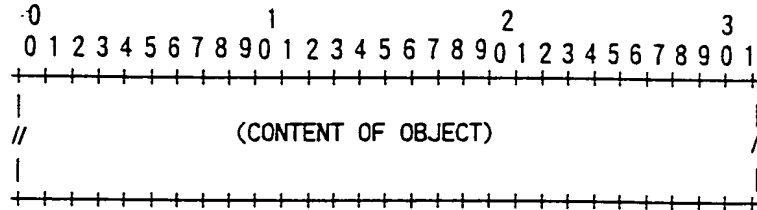
1. STRUCTURE OF PATH MESSAGE

```

<PATH MESSAGE> ::=
    <COMMON HEADER> [<INTEGRITY>]
    <SESSION> <RSVP_HOP>
    <TIME_VALUES>
    [<EXPLICIT_ROUTE>]
    <LABEL_REQUEST>
    [<SESSION_ATTRIBUTE>]
    [<POLICY_DATA>...]
    [<SENDER_DESCRIPTOR>]

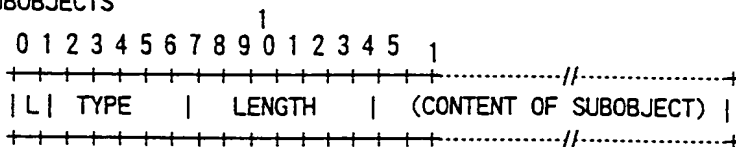
<SENDER_DESCRIPTOR> ::=
    <SENDER_TEMPLATE> [<SENDER_TSPEC>]
    [<ADSPEC>]
    [<RECORD_ROUTE>]
    
```

2. STRUCTURE OF EXPLICIT ROUTE OBJECT



EXPLICIT ROUTE OBJECT IS A SERIES OF VARIABLE LENGTH DATA ITEMS CALLED SUBOBJECTS

3. SUBOBJECTS



TYPE: THIS INDICATES TYPE OF CONTENT OF SUBOBJECT. VALUES DEFINED AT PRESENT ARE AS FOLLOWS

- 0 RESERVE
- 1 IPv4 PREFIX
- 2 IPv6 PREFIX
- 32 SELF-SUPPORTED SYSTEM NUMBER
- 64 TERMINATING OF MPLS LABEL SWITCHED PATH

4. IPv4 PREFIX

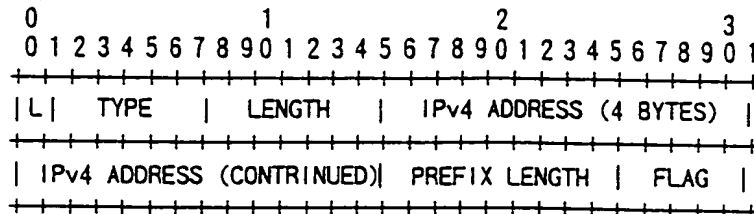


FIG.18

EXAMPLE OF ADDITIONAL DEFINITION OF SUBOBJECT OF EXPLICIT ROUTE OBJECT

1. SUBOBJECTS

0 1

L	TYPE	LENGTH	(CONTENT OF SUBOBJECT)

TYPE: THIS INDICATES TYPE OF CONTENT OF SUBOBJECT. VALUES DEFINED AT PRESENT
ARE AS FOLLOWS

- | | | |
|-----|---|------------|
| 0 | RESERVE | |
| 1 | IPv4 PREFIX | |
| 2 | IPv6 PREFIX | |
| 32 | SELF-SUPPORTED SYSTEM NUMBER | |
| 64 | TERMINATING OF MPLS LABEL SWITCHED PATH | |
| 127 | PORT AND PORT GROUP (LINK AND LINK GROUP) | ← ADDITION |

2. EXAMPLE OF CONFIGURATION OF PORT AND PORT GROUP (LINK AND LINK GROUP) ← ADDITION

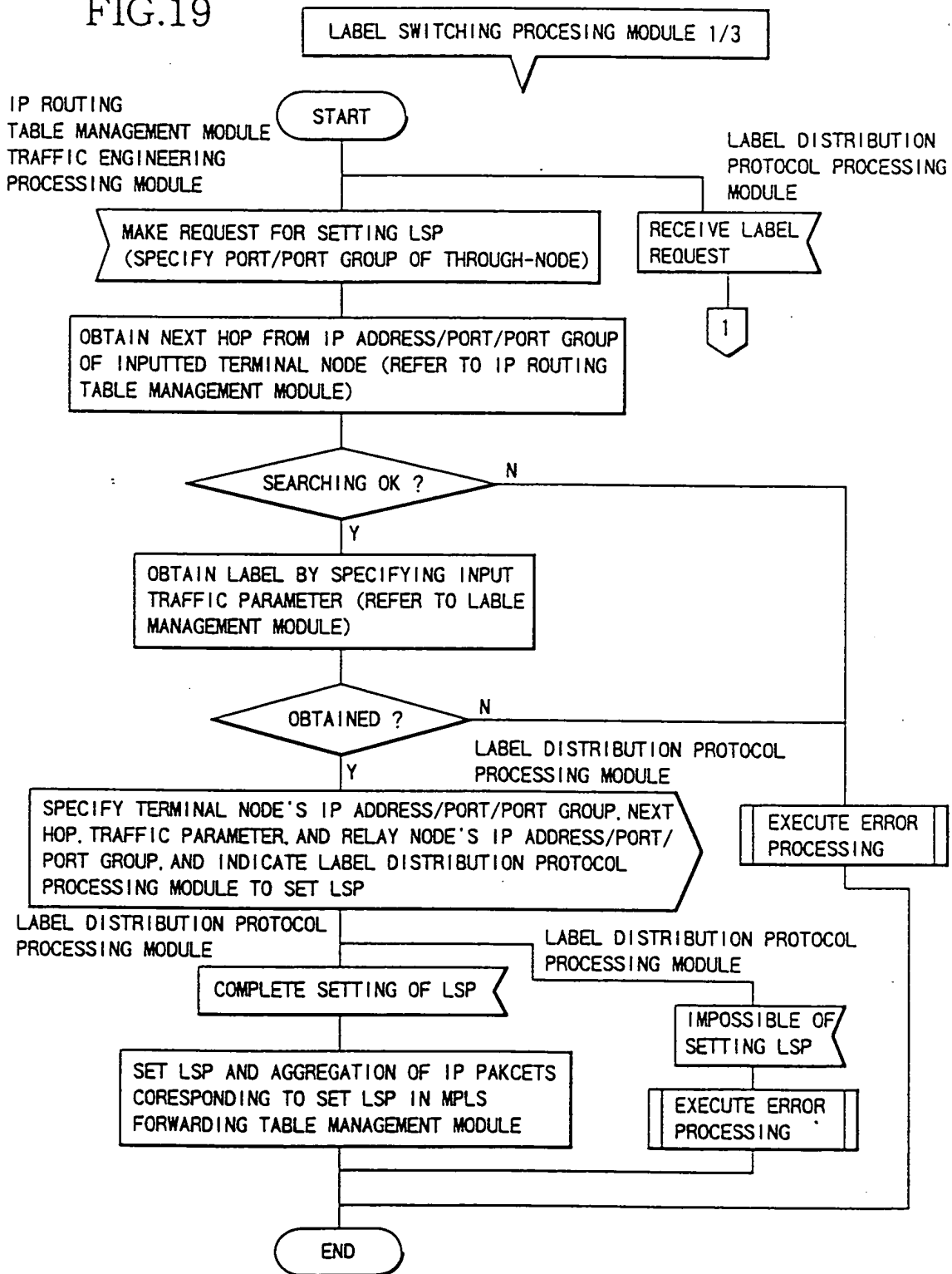
0										1										2										3									
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
TYPE										LENGTH										OUTPUT PORT GROUP NUMBER																			
OUTPUT PORT NUMBER																				FLAG																			

OUTPUT PORT GROUP NUMBER : THIS NUMBER INDICATES PORT GROUP (LINK GROUP OR INTERFACE GROUP) IN DOWNSTREAM DIRECTION OF LSP PASSING THROUGH SYSTEM

ALL '1' INDICATES WILD CARD. THIS IS USED FOR
SPECIFYING ONLY OUTPUT PORT

OUTPUT PORT NUMBER : THIS NUMBER INDICATES PORT (LINK OR INTERFACE) IN DOWNSTREAM
DIRECTION OF LSP PASSING THROUGH SYSTEM
ALL '1' INDICATES WILD CARD. THIS IS USED FOR SPECIFYING
ONLY OUTPUT PORT GROUP

FIG.19



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FIG.20

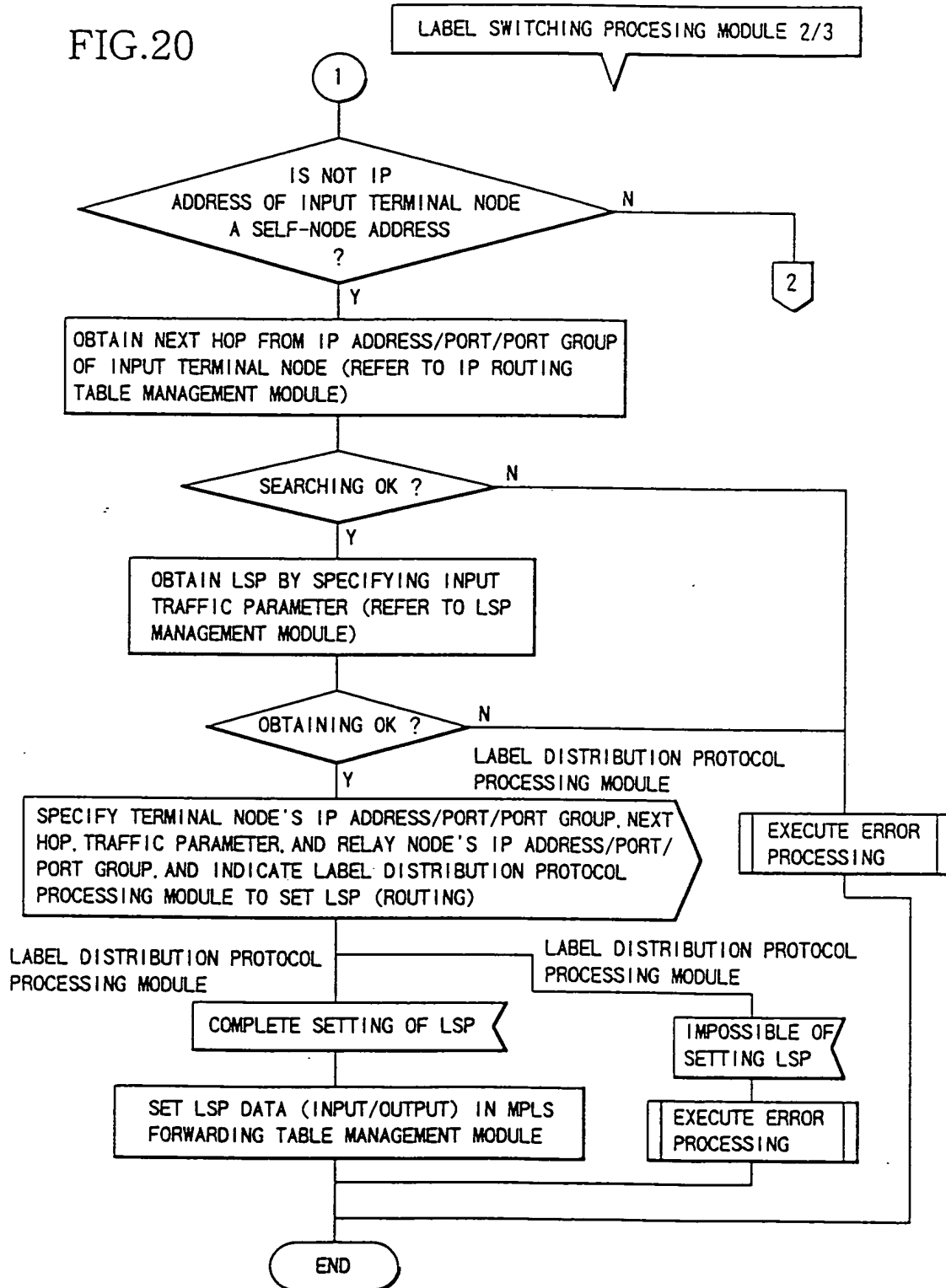


FIG.21

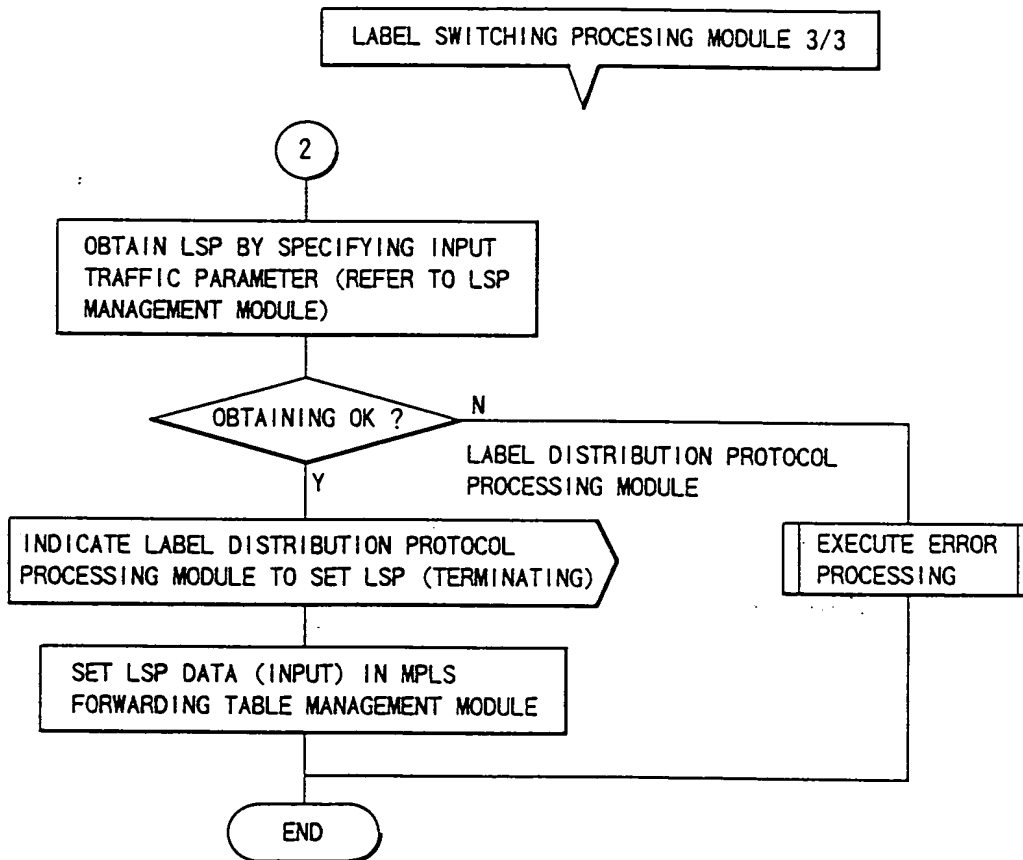


FIG.22

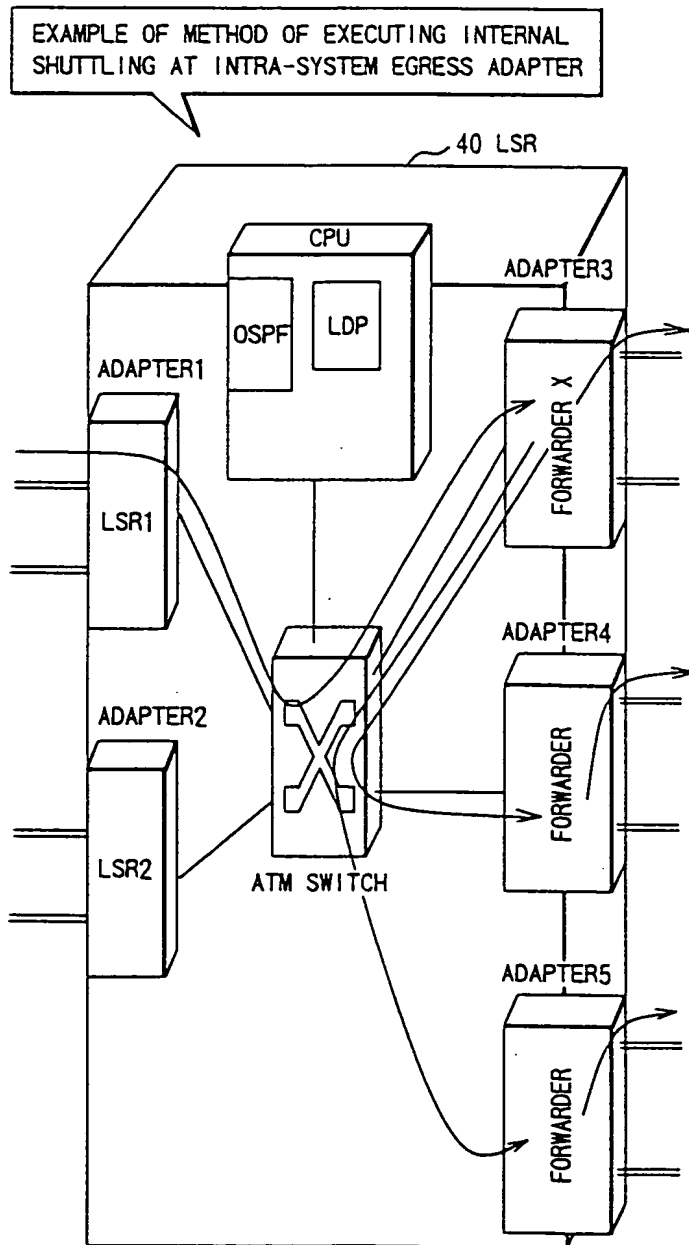
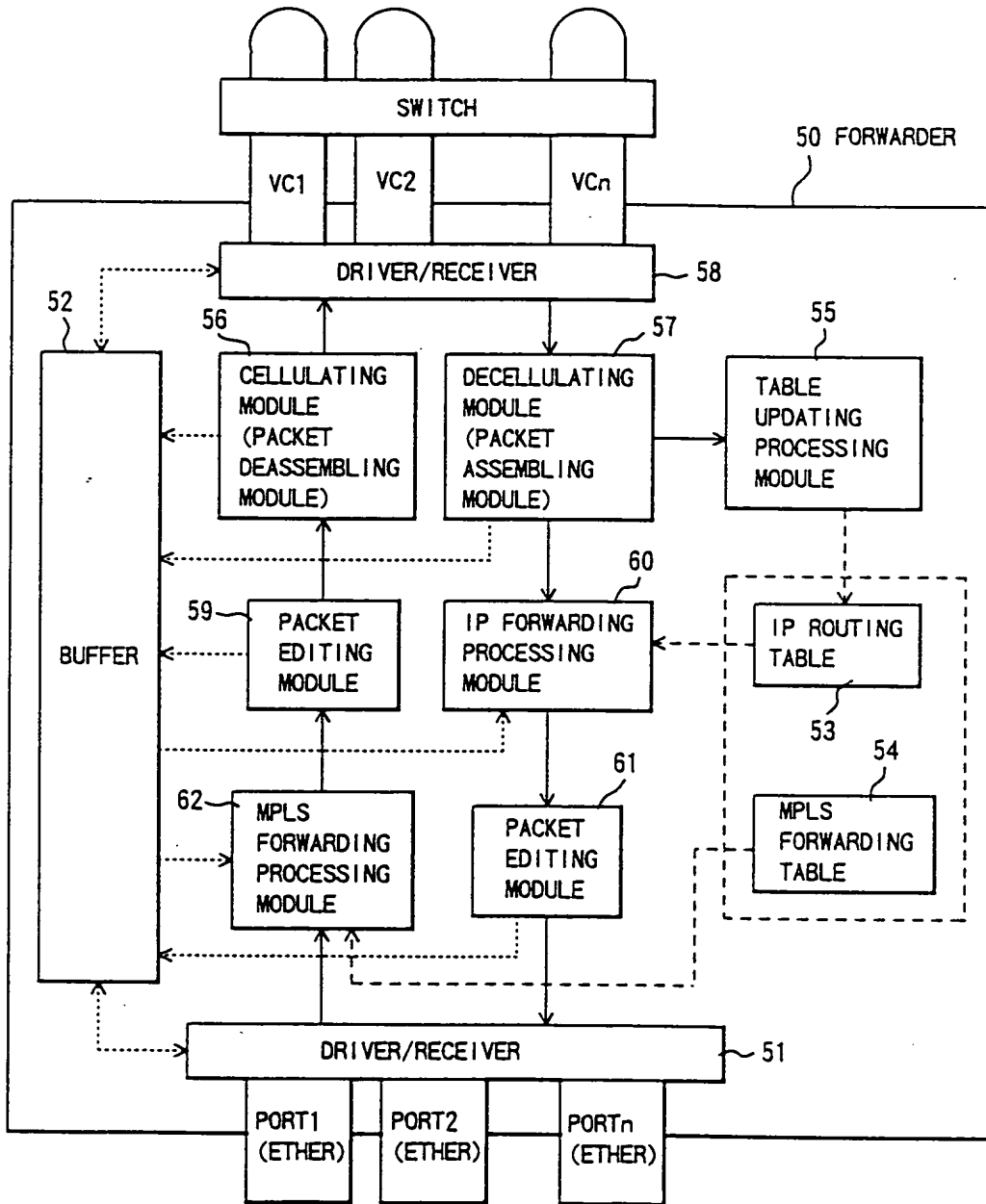
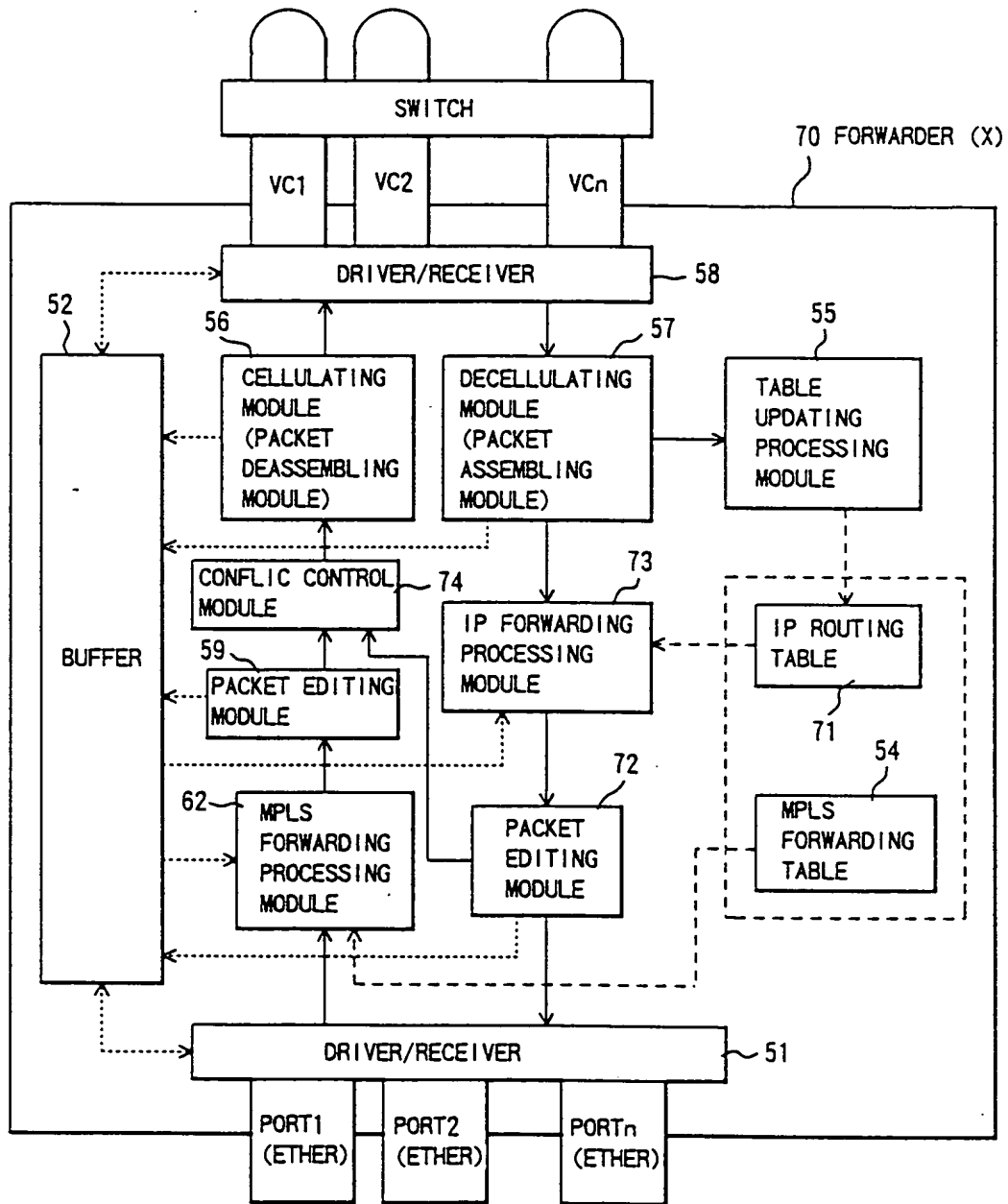


FIG.23



————— : CONTROL
 : REFERRING/EDITING OF DATA
 - - - - - : REFERRING/UPDATING OF TABLE

FIG.24

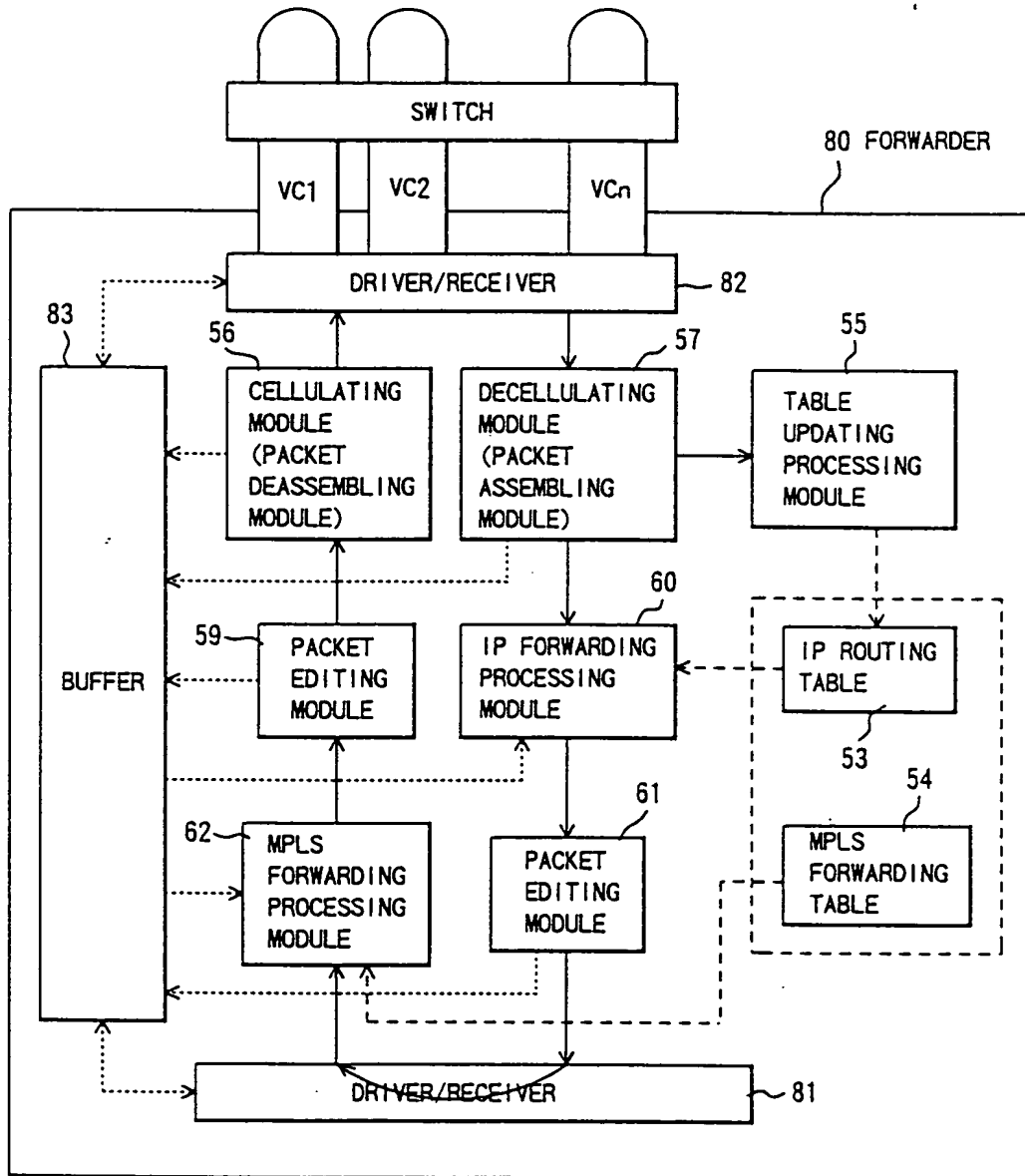


—— : CONTROL

..... : REFERRING/EDITING OF DATA

----- : REFERRING/UPDATING OF TABLE

FIG.25



— : CONTROL
 : REFERRING/EDITING OF DATA
 - - - - : REFERRING/UPDATING OF TABLE